

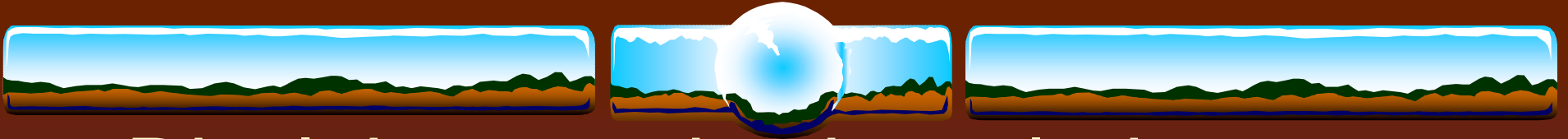
The U.S. Experience with Marketable Permits for Pollution Control

An Economist's Perspective



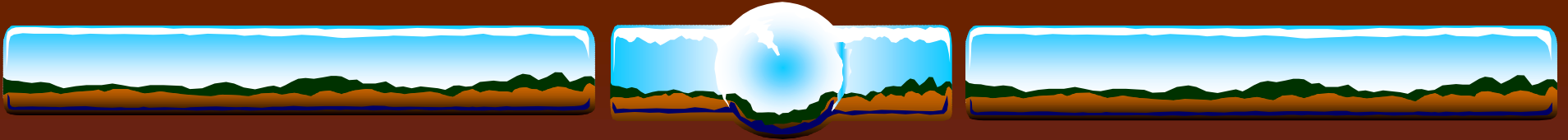
National Center of Environmental Economics
Office of Policy Economics and Innovation,
US Environmental Protection Agency

July 17, 2002



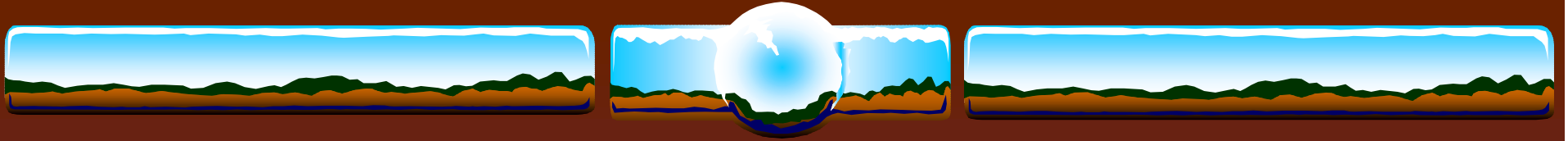
Disclaimer and acknowledgements

- ❖ Views expressed in this presentation are those of its authors and do not necessarily represent EPA positions.
- ❖ The presentation includes these slides, hand-outs and oral discussion; none are meant to stand alone.
- ❖ The presentation simplifies & characterizes complex programs, issues, & events for pedagogical purposes.
- ❖ The presentation was prepared by Alan Carlin (OPEI), Barry Korb (OPEI), Brian McClean (OAR), and Al McGartland (OPEI).



Outline of discussion

- I. Economic incentives in general and marketable permits in particular.
- II. The evolution of marketable permits, at the Federal level in the US for air pollution control.
- III. Marketable permits in Federal water pollution.
- IV. Observations and conclusions.



I. What are economic incentives?

Policy instruments that provide continuous inducements, financial or otherwise, to sources of pollution to reduce their releases of pollutants or make their products less polluting.



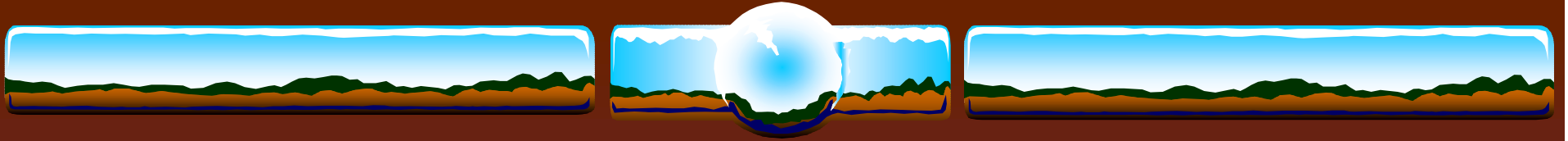
Economic incentives

Report on US Experience

Available as handout
or at

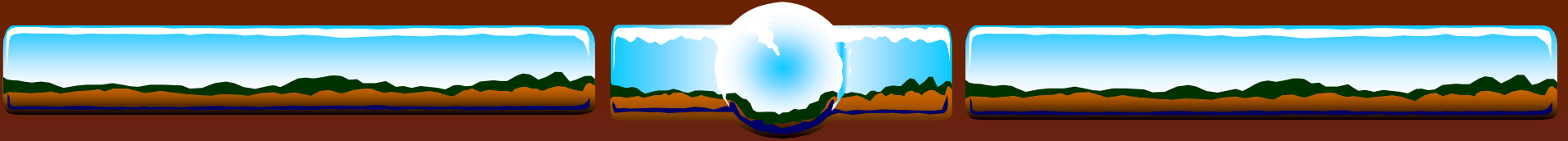
[http://yosemite.epa.gov/ee/epalib/
incent2.nsf](http://yosemite.epa.gov/ee/epalib/incent2.nsf)





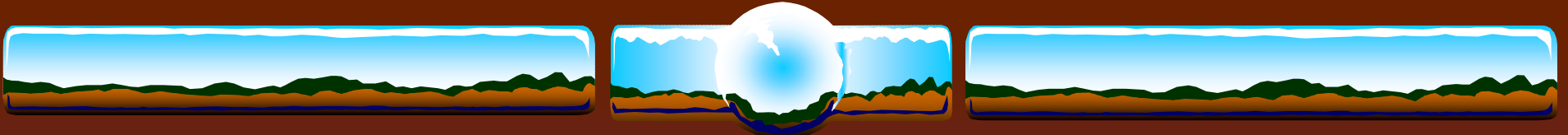
Seven basic types of Incentives

- ❖ Marketable permits or Trading programs
- ❖ Pollution charges, fees, and taxes
- ❖ Deposit-refund systems
- ❖ Subsidies for pollution control
- ❖ Liability approaches
- ❖ Information disclosure
- ❖ Voluntary programs



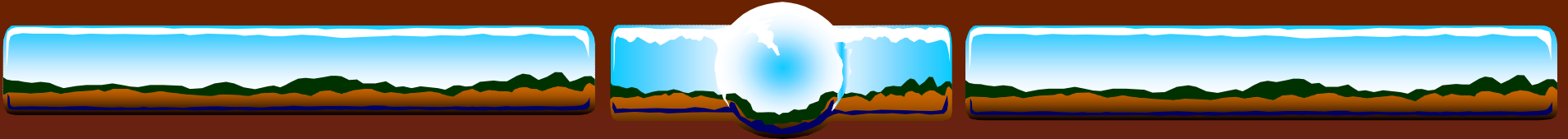
Why limit discussion to marketable permits?

- ❖ Of the seven types of incentives
 - ❖ Only the first four put a direct price on pollution.
 - ❖ These are of primary interest to economists.
- ❖ Of these four, only the first, Marketable Permits or Trading programs, has been widely used at the national level in the US.



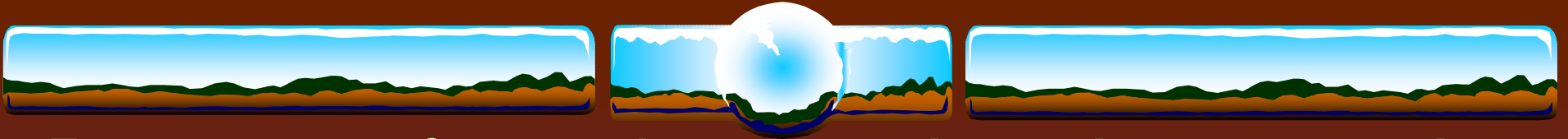
What is a marketable permit program?

- ❖ Marketable permit programs are quantity-based economic incentives and are often grouped into:
 - ❖ Uncapped emission reduction credit (ERCs) programs, or
 - ❖ Capped allowance (“cap-and-trade”) systems
- ❖ Marketable permit programs allow regulated entities to satisfy specified emission reduction (allowance) requirements by making private arrangements to obtain environmentally equivalent reductions (allowances) elsewhere subject to constraints imposed by program design.



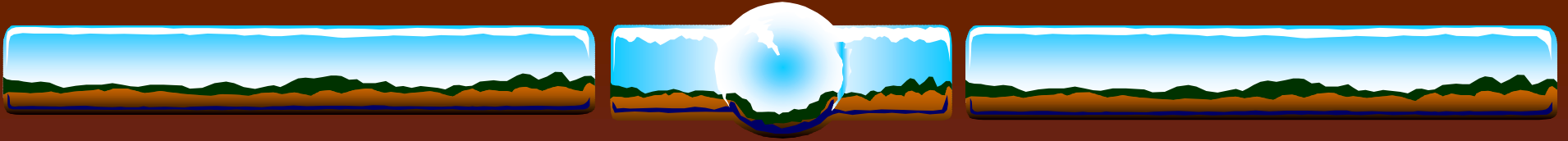
Why choose marketable permits over fees?

- ❖ US emphasizes marketable permits because:
 - ❖ Government can allocate valuable rights to individual sources
 - ❖ Greater certainty quantitative environmental goals will be met.
 - ❖ Authority to set quantity limits better established.
 - ❖ Industry prefers voluntary nature of marketable permit programs, views fees as 'paying twice'.



Reasons for using marketable permits

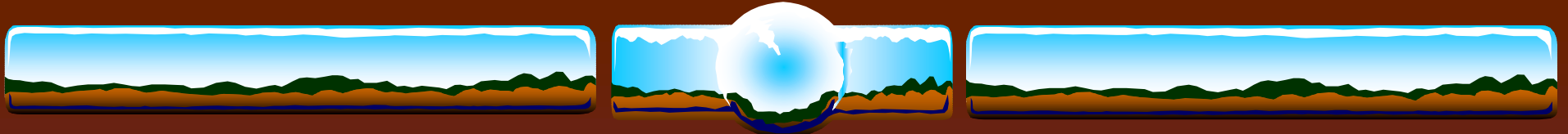
- ❖ Harnesses creativity of the market to find innovative, lower cost, solutions over the longer term.
- ❖ Allows redistribution of the abatement burden.
- ❖ Encourages adoption of least cost reductions that are often not amenable to direct environmental regulation.
- ❖ Brings un- and under-regulated sources into market.
- ❖ Helps correct market failures by forcing polluters to internalize the social cost of their pollution.
- ❖ Provides economic savings (versus C&C) by equating marginal costs of control across sources.



Economic savings can be large

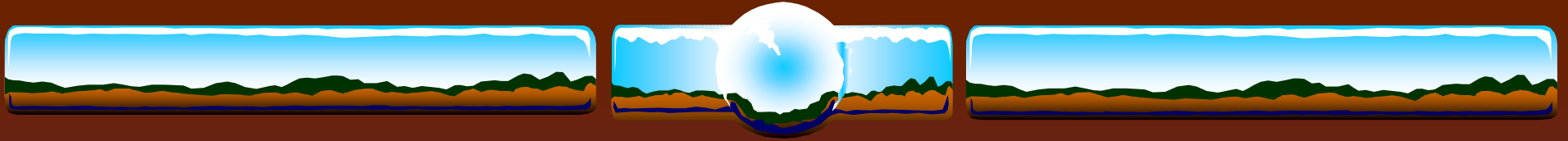
- ❖ Most studies find traditional approaches cost at least 50% more than economic incentives.
- ❖ One study concluded:
 - ❖ Total savings could be \$45 billion per year if incentives were used for all major EPA programs.
 - ❖ This would cut costs by roughly 25%.

[<http://yosemite.epa.gov/ee/epa/incsave.nsf>]



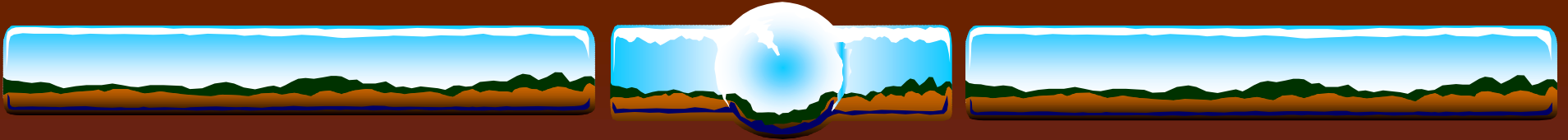
What is the traditional command-and-control (c&c) approach?

- ❖ Government regulator specifies emission limits, monitoring and reporting requirements for each emission point in a way which it believes will lead to attainment of environmental goals if entities comply.
- ❖ C&C regulations may also impose specifications on:
 - ❖ Technology to be used to control emissions
 - ❖ Inputs that may be used in production processes
 - ❖ Characteristics of outputs produced



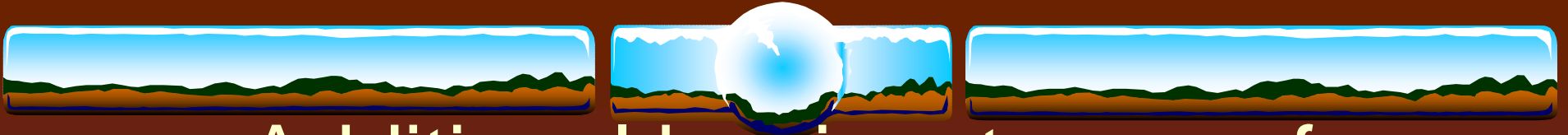
II. Evolution of marketable permits in federal air pollution control

- ❖ Early efforts: emission reduction credit programs --
 - offsets, netting, banking, and bubbles.
- ❖ Acceptance: Large scale 'Cap and Trade' programs
 - Lead-in-gasoline phase down and acid rain.
- ❖ The present and the future:
 - Clear skies and some interesting variations₁₃



Early efforts -- the 1970's

- ❖ Drivers leaned to 'command-and-control' paradigm.
 - ❖ Program engineers - wanted to mandate best technology
 - ❖ Enforcement lawyers - sought certainty of set technologies
 - ❖ Public health officials - concerned only with protecting health
 - ❖ Environmentalists - wanted industry to do everything feasible
 - ❖ Industry - fought any controls, but wanted certainty
 - ❖ Public - wanted clean air, but not willing to change life style
 - ❖ Congress -- crafted a CAA focussed on command & control
- ❖ A few economists/policy wonks leaned to incentives -
 - ❖ Incentive based approaches were unable to gain a toe-hold.



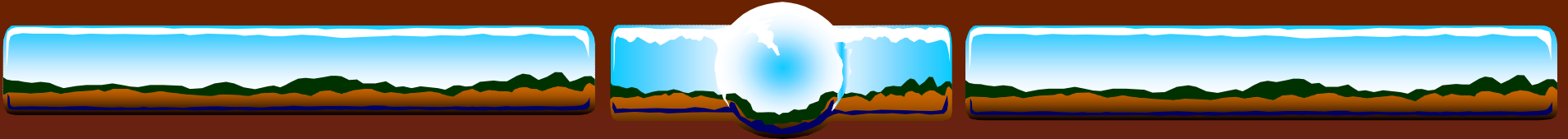
Additional barriers to use of marketable permits

- ❖ C&C regulations often imposed requirements which could not be easily traded against:
 - ❖ Technology standards
 - ❖ Emission limits expressed as rates, not caps.
- ❖ Regulators did not want to invest the resources or make necessary institutional changes.
- ❖ Regulators feared that they would lose control or that enforcement efforts would be more difficult.
- ❖ Environmentalists saw it as a vehicle to weaken controls or delay compliance.



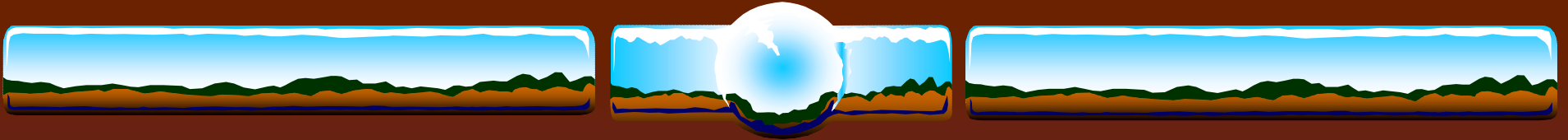
Why did air programs consider marketable permits at all?

- ❖ C&C paradigm created an untenable situation.
- ❖ In “non-attainment” areas, particularly Los Angeles,
 - ❖ Economic growth was effectively prohibited.
 - ❖ New industrial plants could not be sited.
 - ❖ Existing industrial plants could not be expanded.
- ❖ Stopping economic growth was unacceptable.
- ❖ A new approach was needed to:
 - ❖ Allow economic development
 - ❖ Still maintain and advance pollution control efforts.



Solution was a marketable permits program

- ❖ New sources were allowed into the Los Angeles basin if they were able to:
 - ❖ Arrange for an offsetting reduction in emissions from an existing source, and
 - ❖ Advance pollution control efforts by obtaining an offset of 120% (not just 100%) of their emissions.
- ❖ This first marketable permits program was called the “Offset Program.”



Offset concept quickly expanded

❖ Netting

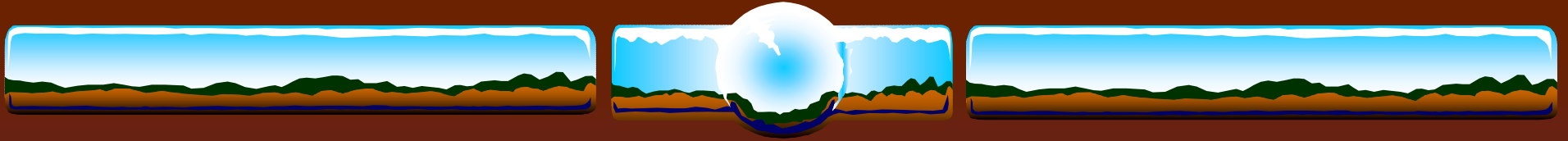
- ❖ An internal offset, allowing expansion in an existing plant.
- ❖ Sources also usually avoid complex new source review.
- ❖ Allowed property right 'to emit pollutants' to be transferred.

❖ Banking:

- ❖ Permanent reductions made now could be used later
- ❖ E.g., Existing source 'A' permanently reduces its emissions from 10 to 5 tons per day now. New source 'B' buys those banked emissions, starts emitting 5 tons per day next year.

❖ Bubbles (averaging):

- ❖ Allows existing sources to aggregate emissions from multiple points.

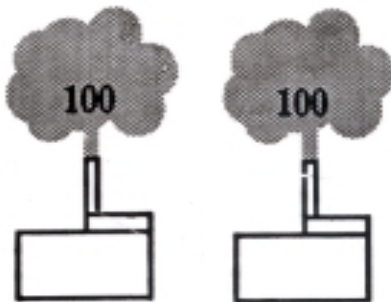


Number of trades in Los Angeles by year

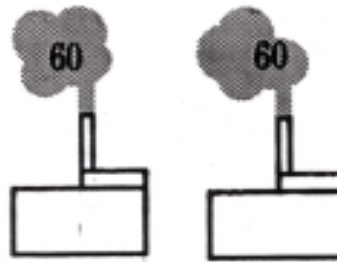
(Source: Foster and Hahn 1995)

YEAR	OFFSETS	NETTING	TOTAL
pre-1977	...	5	5
1977	...	30	30
1978	...	34	34
1979	...	72	72
1980	...	129	129
1981	...	238	238
1982	...	210	210
1983	...	258	258
1984	...	256	256
1985	7	235	242
1986	27	432	459
1987	24	329	353
1988	55	358	413
1989	30	352	382
1990	53	394	447
1991	2,208	155	2,363
1992	3,678	77	3,755

THE BUBBLE CONCEPT



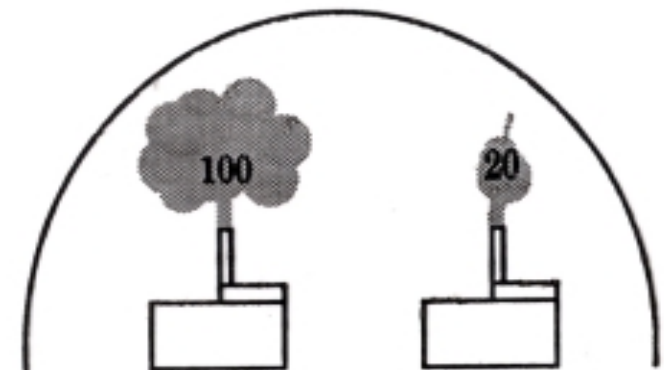
Under no management system, firms 1 and 2 both emit 100 tons of pollutant per year.



Under command-and-control, each firm is required to reduce its emissions by 40 tons per year without regard for costs.

If it costs Firm 1 \$100 per ton to reduce emissions, and it costs Firm 2 \$20 per ton for reductions, then:

Firm 1		$40 \times 100 = 4,000$
Firm 2	+	$40 \times 20 = 800$
TOTAL COST		\$ 4,800



Under a Bubble Policy, where firms are allowed to trade freely, Firm 1 would pay firm 2 to reduce its emissions by an additional 40 tons per year, and would save \$80 per ton in costs while still attaining the environmental standard.

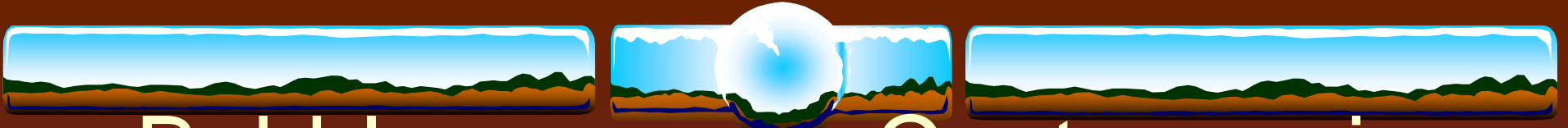
Firm 1		$0 \times 100 = 0$
+ Firm 2	+	$80 \times 20 = 1,600$
TOTAL COST		\$ 1,600

For a cost savings of \$3,200



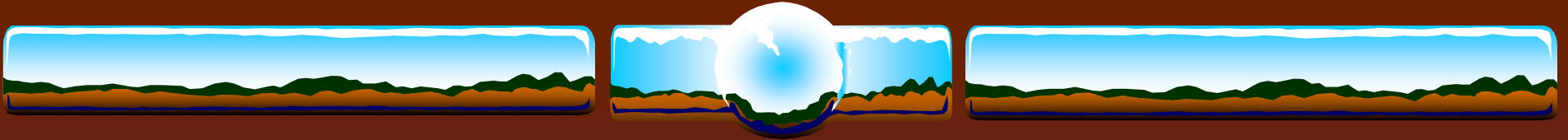
Bubble program: Concept discussion

- ❖ Bubbles dependent on an underlying infrastructure: base-line C&C regulations, monitoring requirements, permits, enforcement and trading rules.
- ❖ Situation more complex if sources not adjacent:
 - ❖ Air quality modeling needed to estimate a trading ratio
 - ❖ Must ensure that local hot spots not created
- ❖ Sources must accept a cap on total emissions
- ❖ Decision to participate is entirely voluntary
- ❖ Bubbles are single events, not competitive markets



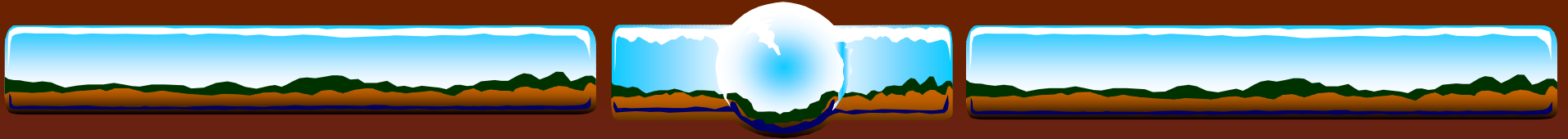
Bubble program: Controversies

- ❖ Potential for Fraudulent Trades, that could harm the environment/generate cash windfalls, e.g. by selling:
 - ❖ Difference between 'allowables' and 'actuals.'
 - ❖ Credits that were not 'real' (production shifted).
 - ❖ Credits from reductions or 'closures' that would have occurred anyway (contemporaneous issue).
- ❖ Environmentalists wanted sources that could control further to do so for the environment, not for profit.
- ❖ Needed monitoring expensive/not available and Agencies lacked resources to design/implement.



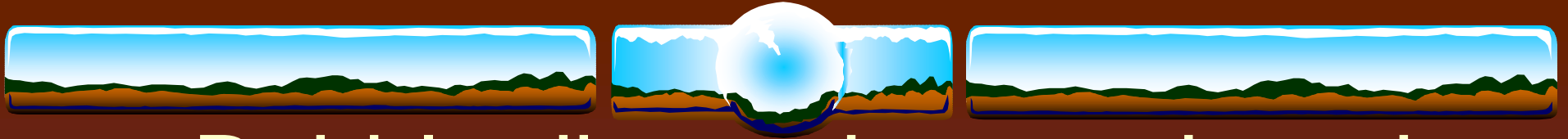
Bubble program: Concept discussion

- ❖ As illustrated, bubbles yield significant savings
- ❖ This is the “invisible hand of the market” at work.
- ❖ Similar savings not available from C&C approach:
 - ❖ States unable to assign efficient limits
 - ❖ Constrained by need to assign same standard to all sources in a category (equity concern)
 - ❖ Source can volunteer what State can not mandate: product redesign, innovation, source reduction
- ❖ A bubble is a single event -- not an economist's classic competitive market



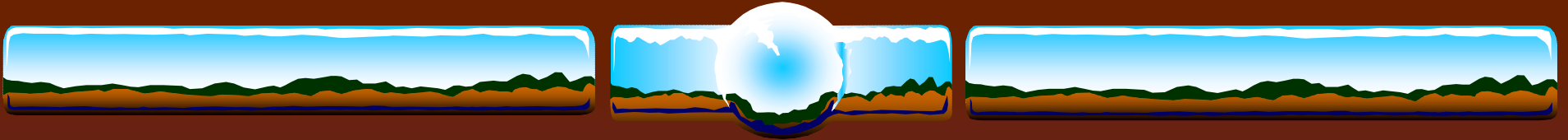
Bubble discussion continued

- ❖ The illustration assumed sources were side-by-side -
 - Means no environmental impact from the bubble
- ❖ For many pollutants situation becomes complex as sources move further apart or have disproportionate impacts on local environmental quality.
 - ❖ This often necessitates air quality modeling to estimate a trading ratio --both raise transaction costs
 - ❖ Also must ensure that local hot spots not created
- ❖ Costs also raised by sources need to accept a cap on total emissions



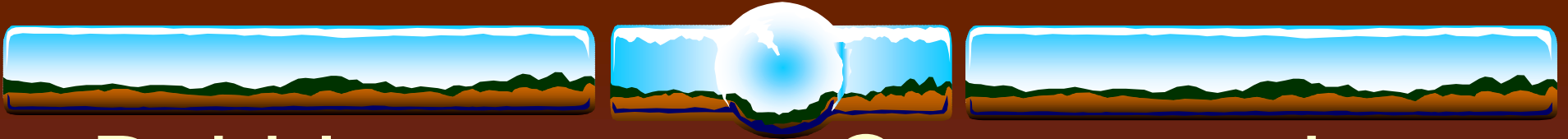
Bubble discussion continued

- ❖ Bubbling is entirely voluntary: sources choose to whether or not to participate as buyers or sellers.
- ❖ Bubbles are dependent on an underlying command and control infrastructure: laws, regulations, monitoring requirements, permits, enforcement, rules for trading, and underlying contract law, etc
- ❖ Complex design issues/controversies existed even in this simple program



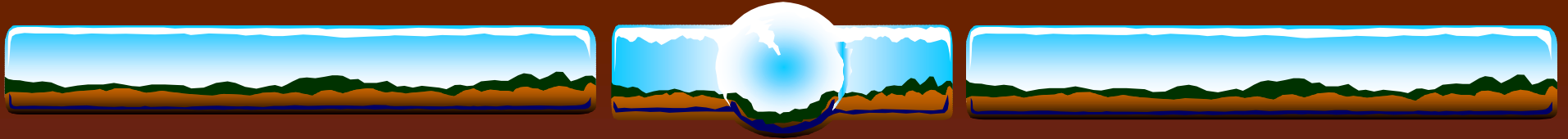
Bubble program: Controversies

- ❖ Potential for Fraudulent Trades, that could harm the environment/generate cash windfalls, e.g. by selling:
 - ❖ Difference between 'allowables' and 'actuals.'
 - ❖ Credits that were not 'real,' because emission generating production shifted to other facilities.
 - ❖ Credits from reductions or 'closures' that would have occurred anyway (contemporaneous issue).
- ❖ Each of these legitimate concerns had to be addressed in rules or guidance.



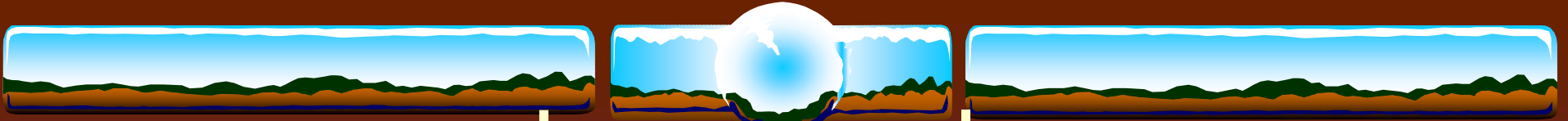
Bubble program: Controversies

- ❖ Inappropriate to sell the environment --
 - ❖ Fails to recognize that this is the way markets deal with all scarce goods.
 - ❖ Command and control approach gives it away!
- ❖ Sources that can control further should do so for the benefit of the environment, not to sell.
- ❖ Prerequisites could not be met:
 - ❖ Needed monitoring expensive/not available.
 - ❖ Agencies lacked resources to design/implement.
 - ❖ Transaction costs would overwhelm savings.



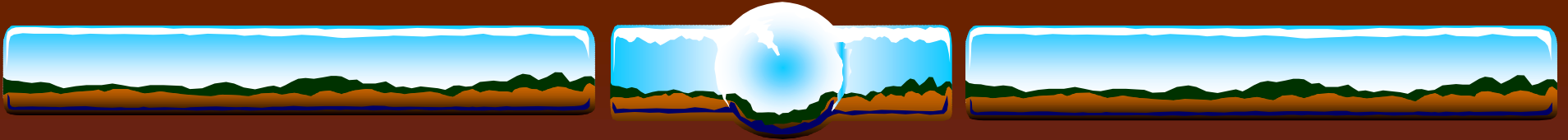
In summary: Offsets, netting and bubbles yielded results but not acceptance

- ❖ Netting saved sources over \$500+ million (est).
- ❖ Bubbles saved sources \$435 million by 1986 (est).
- ❖ Based on private data, reported that offset prices have increased over time with scarcity as economists would have predicted.
- ❖ Never-the-less acceptance by sources, regulators and environmentalists remained limited.



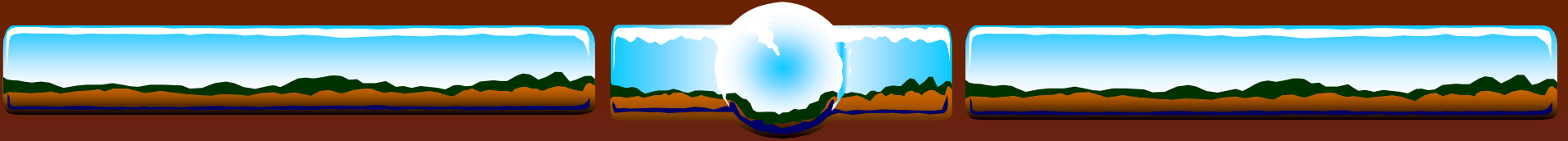
Large scale “cap and trade” programs

- ❖ Acceptance of marketable permits came only after a second generation of programs appeared.
- ❖ The Lead-in-gasoline phase-down program
 - ❖ Introduced the concept of a cap on total emissions
 - ❖ Provided for banking over time of grams of lead, not just the right to certain lead concentrations.
- ❖ The Acid Rain Trading Program
 - ❖ Provided for by Clean Air Act Amendments of 1990
 - ❖ Created allowances usable almost anywhere
 - ❖ Broke a political log jam over control of Acid Rain.



Emissions cap and trading programs

- ❖ Establishes what needs to be done by setting an overall emissions cap
- ❖ Allocates allowances equal to the cap to affected sources
- ❖ Requires measurement and reporting of all emissions: automatic penalties and offsets
- ❖ Requires sources to hold/retire allowances equal to emissions
- ❖ Allows total flexibility in how and when a source complies
- ❖ No government approval of compliance plans/allowance trades
 - ❖ Dramatic departure from previous market programs



Benefits of cap and trade

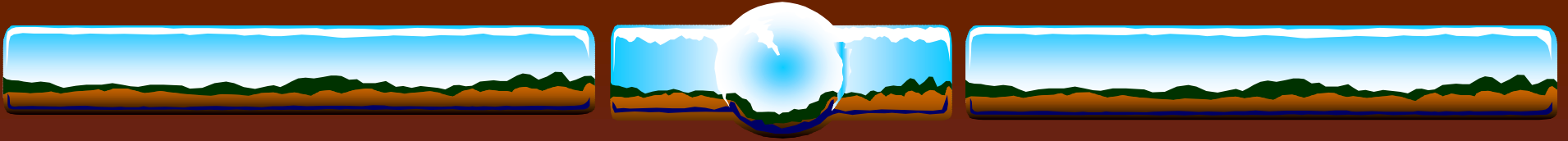
- ❖ More certainty that specific level of emissions will be achieved/maintained (even with economic growth)
- ❖ More regulatory certainty for sources
- ❖ More compliance flexibility and lower transaction costs
- ❖ Fewer administrative resources needed by industry and government
- ❖ Drives down cost - making further improvements feasible





Keys to a successful cap and trade program

- ❖ Cap
 - ❖ Protects the environment
 - ❖ Provides predictability for the market
- ❖ Accountability
 - ❖ Accurate and complete emissions measurement
 - ❖ Transparency of emissions and trading information
 - ❖ Predictable consequences for noncompliance
 - ❖ Evaluating environmental efficacy
- ❖ Simplicity of Design and Operation
 - ❖ Minimal, but effective government role
 - ❖ Facilitates market; maximizes cost savings



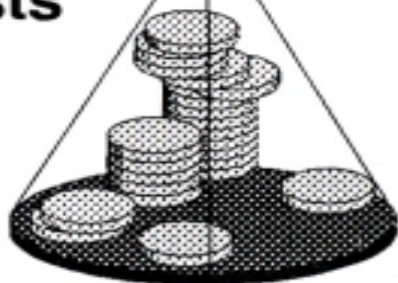
Phase-out of lead in gasoline

- ❖ Allowed two types of trading:
 - ❖ Inter-refinery averaging (1982-5).
 - ❖ Refiners permitted to bank credits (1985-7).
- ❖ Program successful:
 - ❖ Lead use was sharply reduced over short period of time.
 - ❖ No anticipated price spikes occurred.
 - ❖ Allowed for accelerated phase-out of lead in gasoline.
 - ❖ Lead credit trading rose to over 40% of lead use by 1987.
 - ❖ 60% of refineries participated in trading.
 - ❖ 90% of refineries participated in banking.

BENEFITS OF THE LEAD PHASEDOWN PROGRAM

The lead phasedown program reduced the overall costs of compliance as compared to the command-and-control approach.

**C. & C.
Costs**

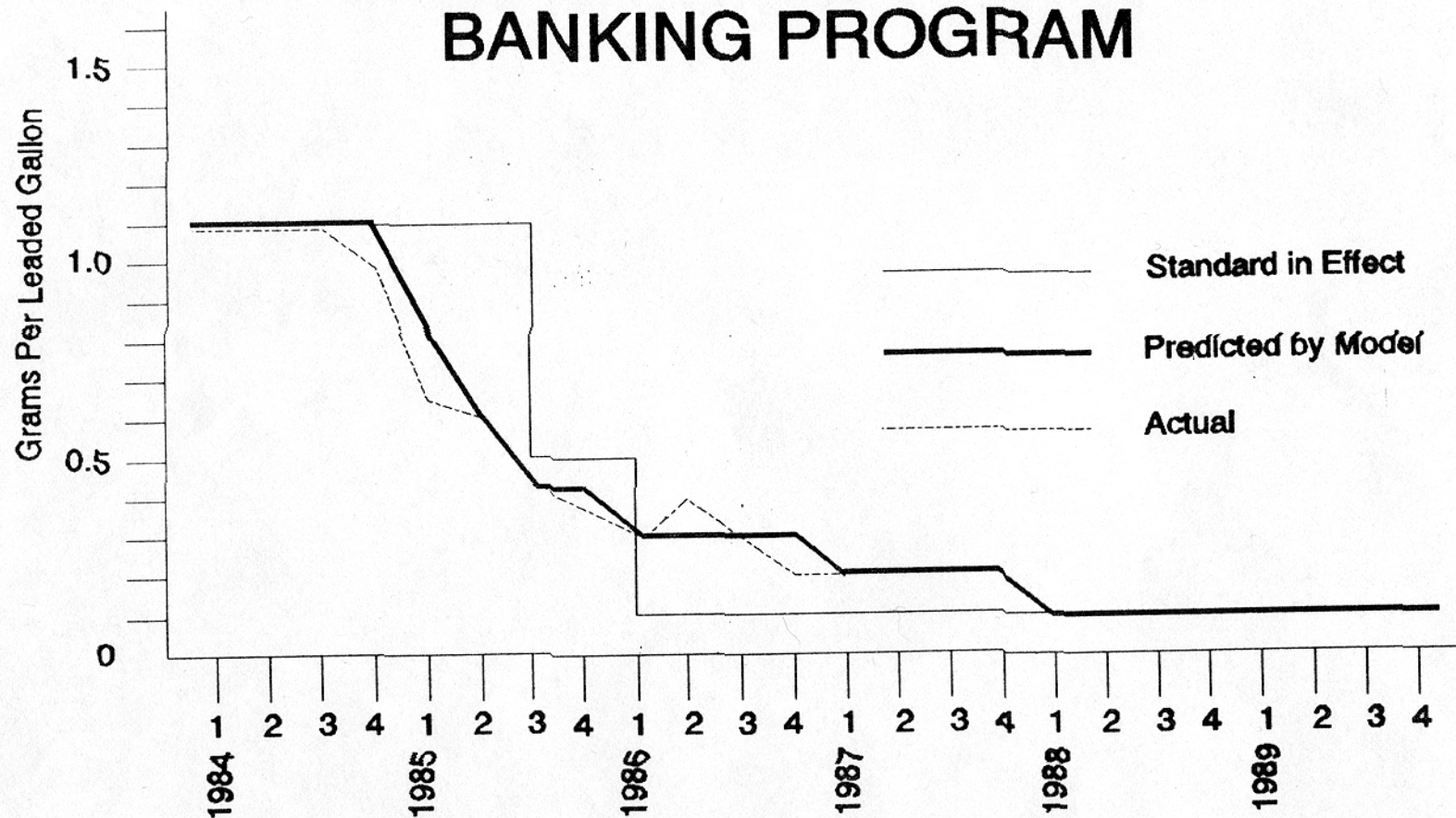


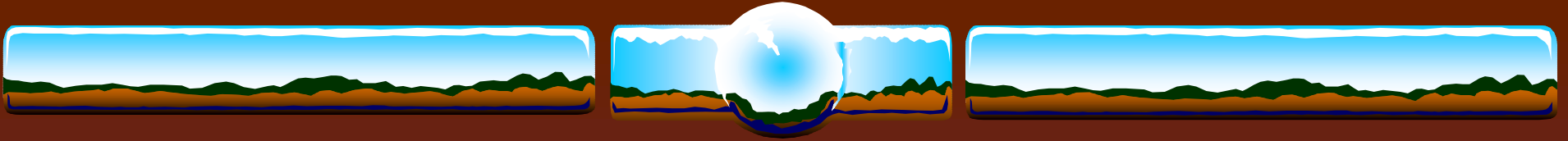
**E. I.
Costs**

**Estimated Cost Savings
from the banking program:
\$ 226 Million**

Source of Savings Estimate: U.S. EPA,

PREDICTED AND ACTUAL LEAD CONCENTRATIONS UNDER BANKING PROGRAM






Acid rain program

- ❖ Established through 1990 Clean Air Act Amendments
- ❖ Created to address multiple environmental and health impacts of long-range, multistate transport of SO_2 and NO_x emissions from electric power generation
- ❖ Introduced “cap and trade” method of emissions reductions

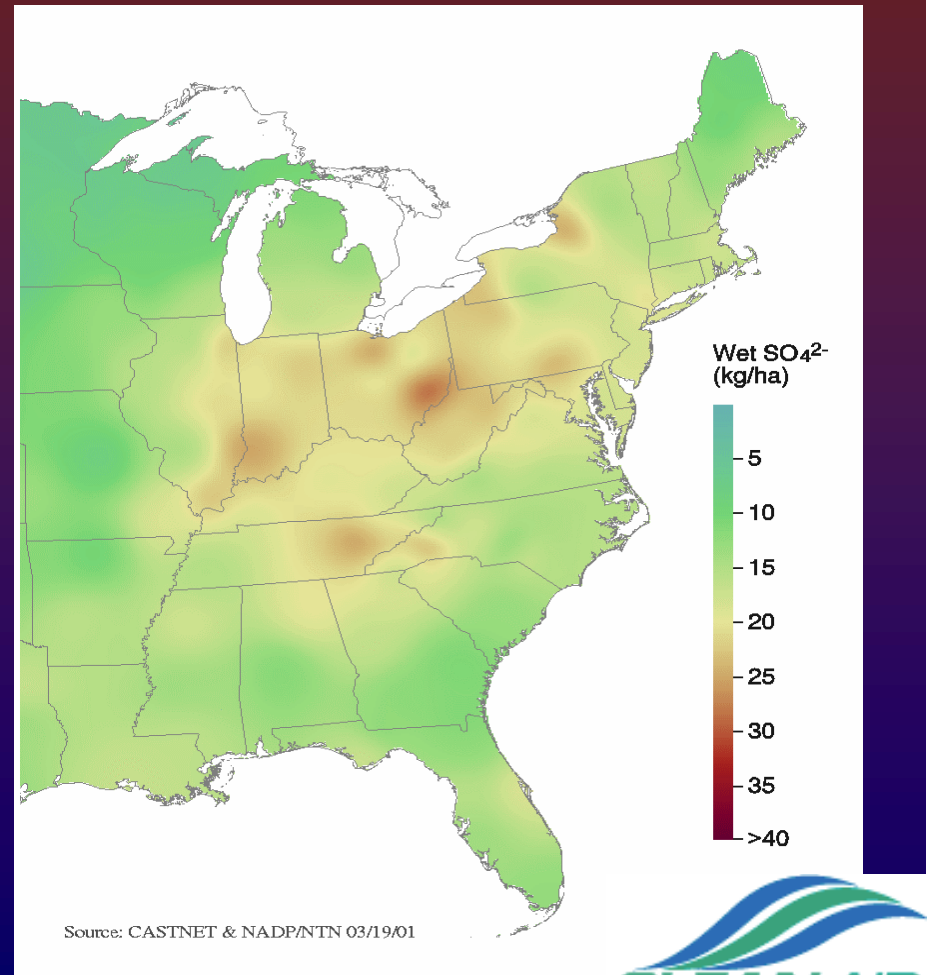
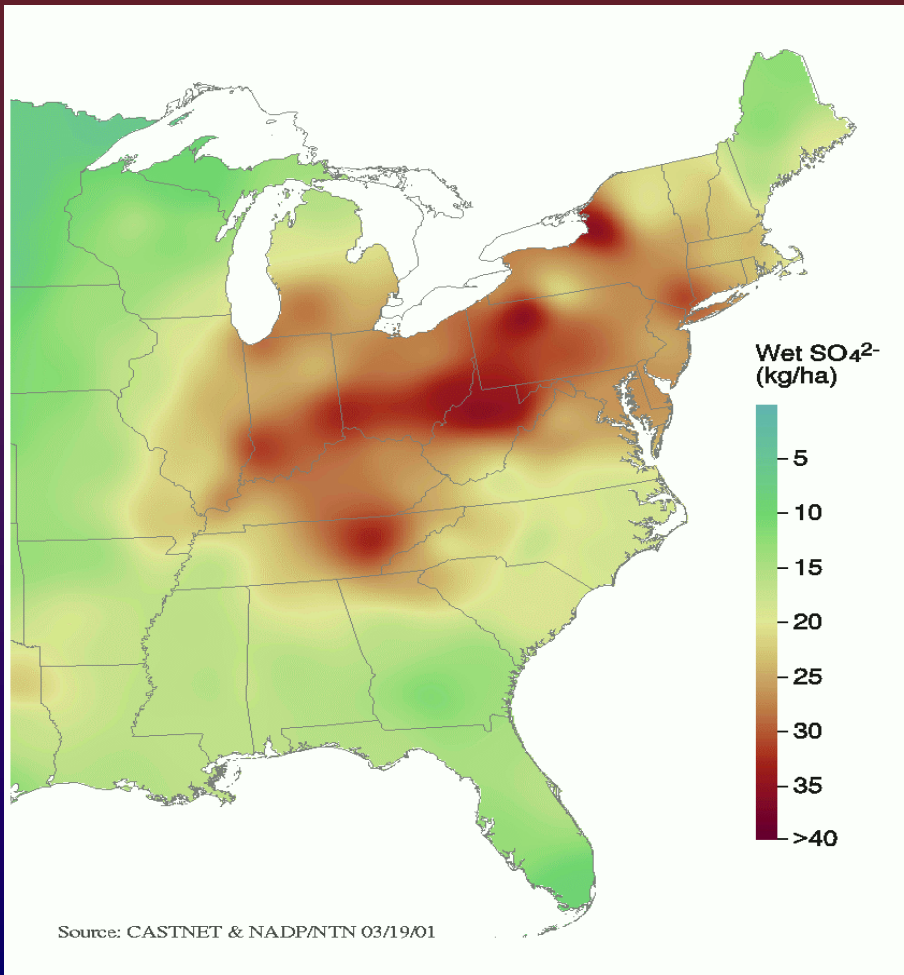




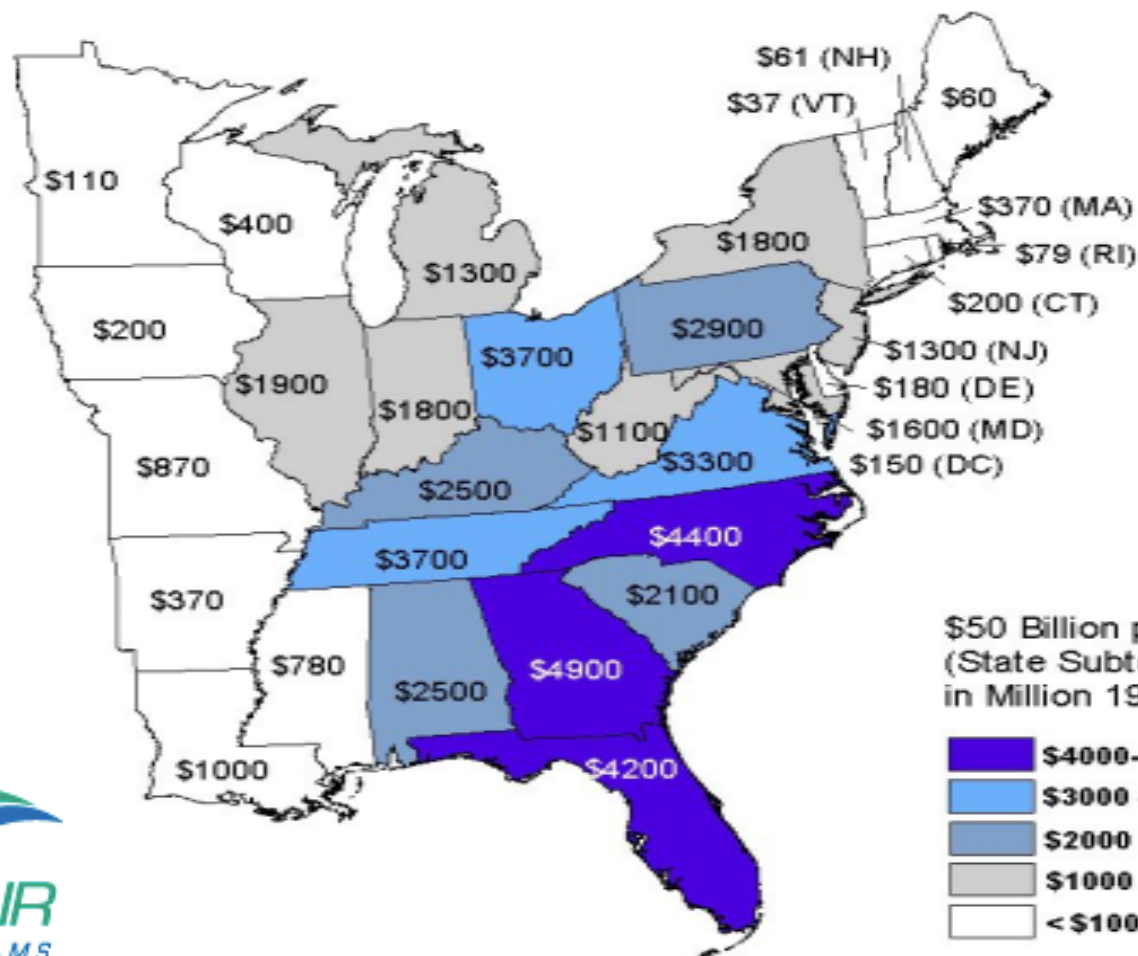
Monitored reduction in wet sulfate deposition due to the acid rain program

1989-91

1997-99



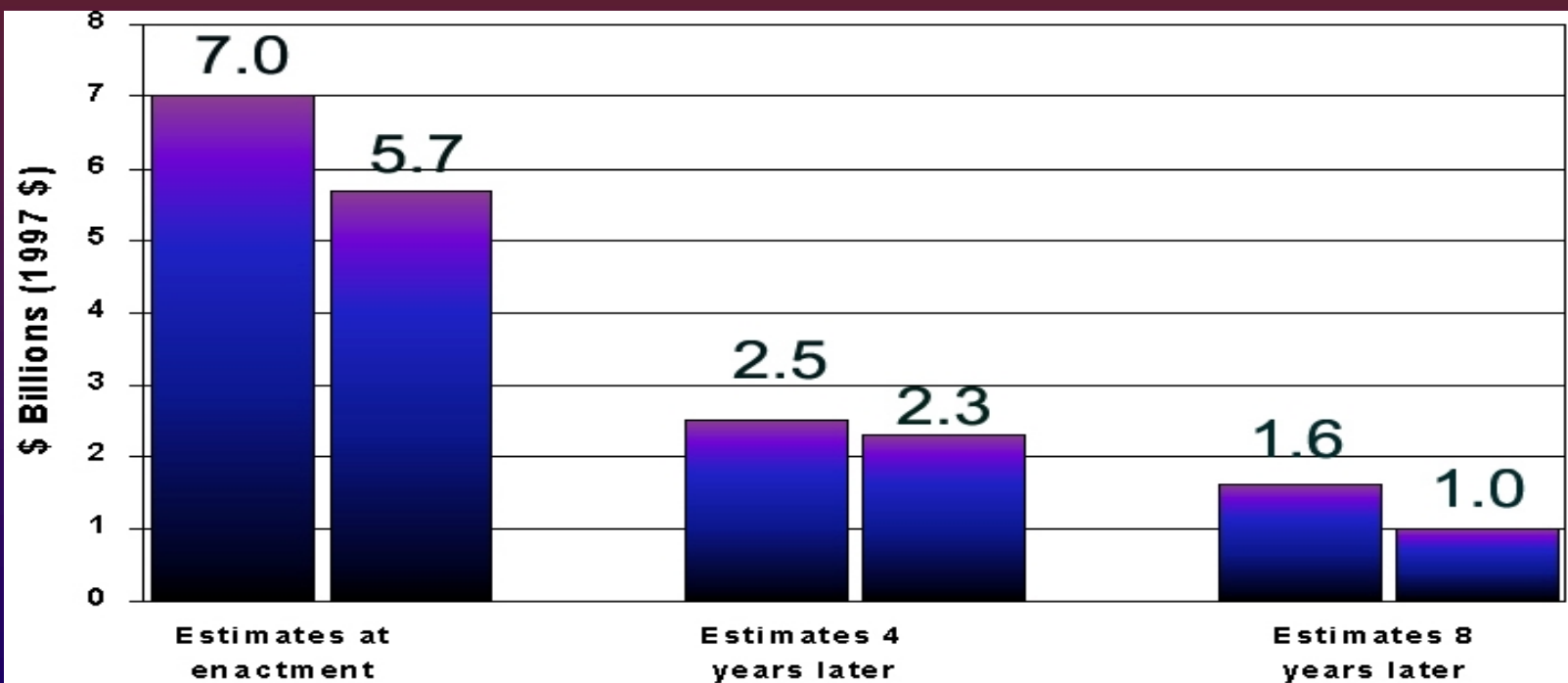
\$50 billion in health benefits from Title IV SO₂ reductions





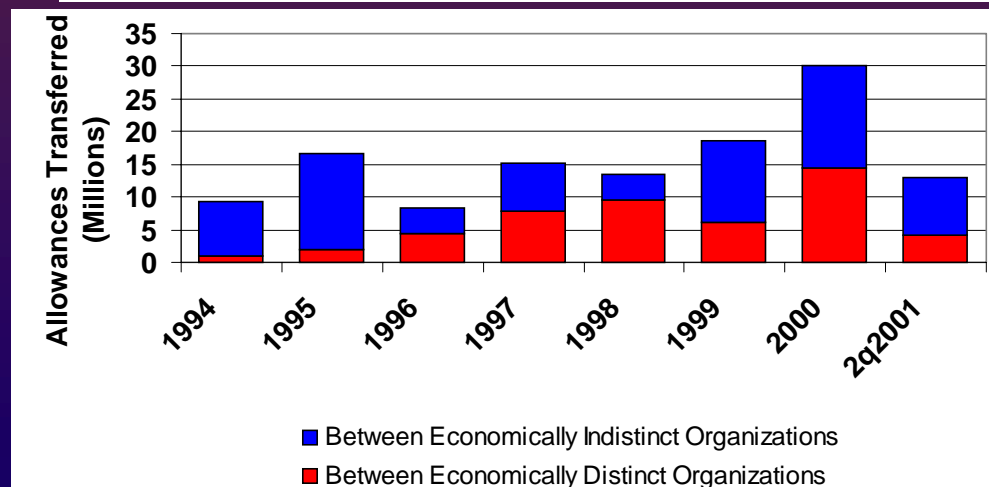
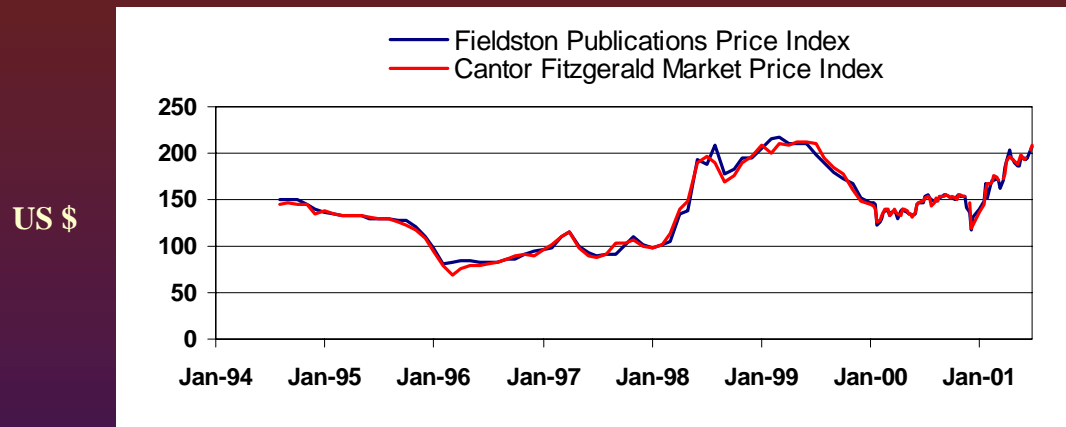
Expected annual costs when fully implemented

75% lower than 1990 projections



The SO₂ allowance market

SO₂ Allowance Price Indices



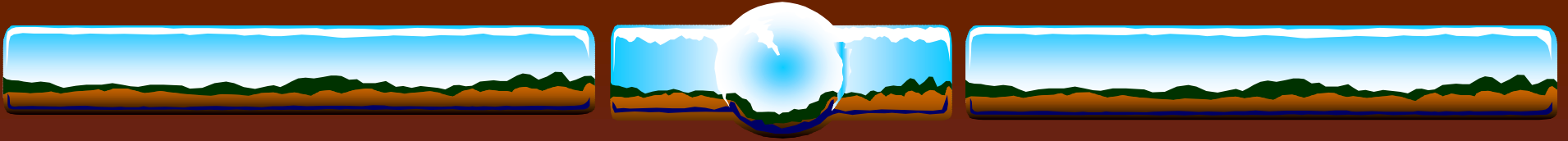
SO₂ Allowances Transferred

Source: Clean Air Markets Division

- ❖ Since 1994, over 124 million SO₂ allowances have been transferred
- ❖ EPA has executed over 15,500 transactions, 80% within 24 hours of receipt
- ❖ Approximately 40% of all SO₂ allowances have been traded between different companies
- ❖ In 1990, EPA estimated allowance prices for 2000 at \$625* (actual price was about \$150).

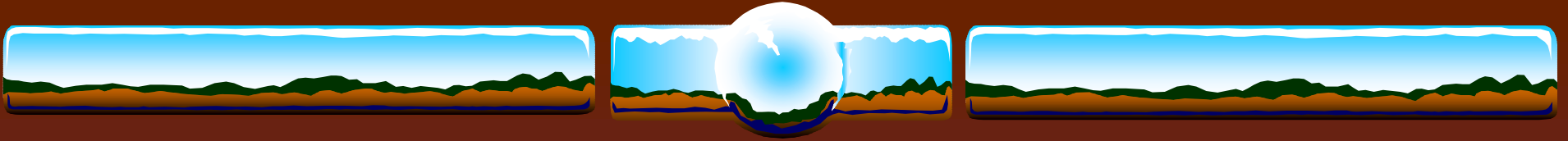
❖ * in 2000 dollars





Marketable permits: The present and the future in air

- ❖ Marketable permits are now fully accepted (if not overly accepted), in the air pollution arena.
- ❖ US EPA is advocating another large-scale trading program -- The Clear Skies Initiative.
- ❖ A number of interesting variations have emerged.



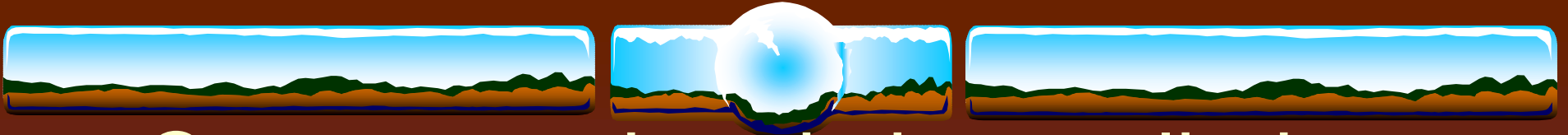
Can cap and trade be used to achieve additional reductions?

❖ SO_2

- ❖ Demonstrated success under the Acid Rain Program
- ❖ Existing cap can be lowered to address remaining concerns

❖ NO_x

- ❖ Demonstrated success as a regional, seasonal program
- ❖ Expansion to an annual, national program would create more flexibility, cost less, and increase benefits



Can cap and trade be applied to other pollutants?

❖ Mercury

- ❖ Controversial candidate for trading
 - ❖ toxicity
 - ❖ local impacts
- ❖ Can work if we ensure prevention of hot spots, as we have done with SO₂ and NO_x

❖ CO₂

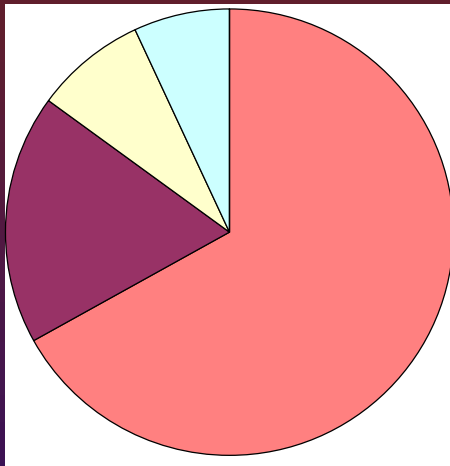
- ❖ Good candidate for trading
- ❖ Administration has decided not to address CO₂ at this juncture. However, several Congressional proposals do include CO₂



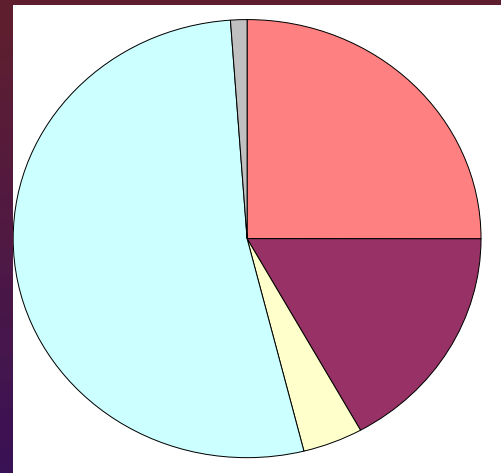


Electric power generation: Major source of emissions

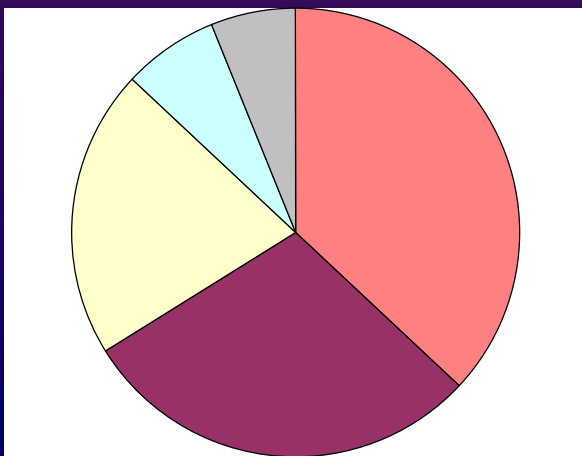
1998 Sulfur Dioxide



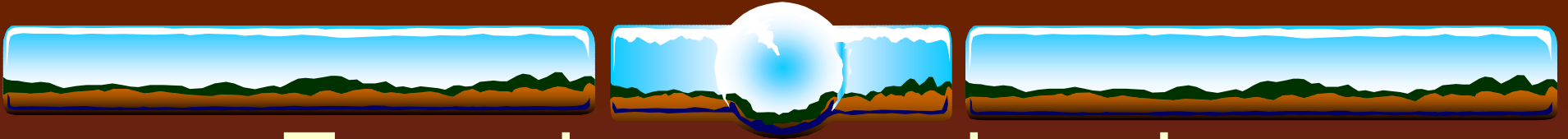
1998 Nitrogen Oxides



1999 Mercury



- Fuel Combustion-electric utilities
- Industrial Processing
- Other stationary combustion *
- Transportation
- Miscellaneous



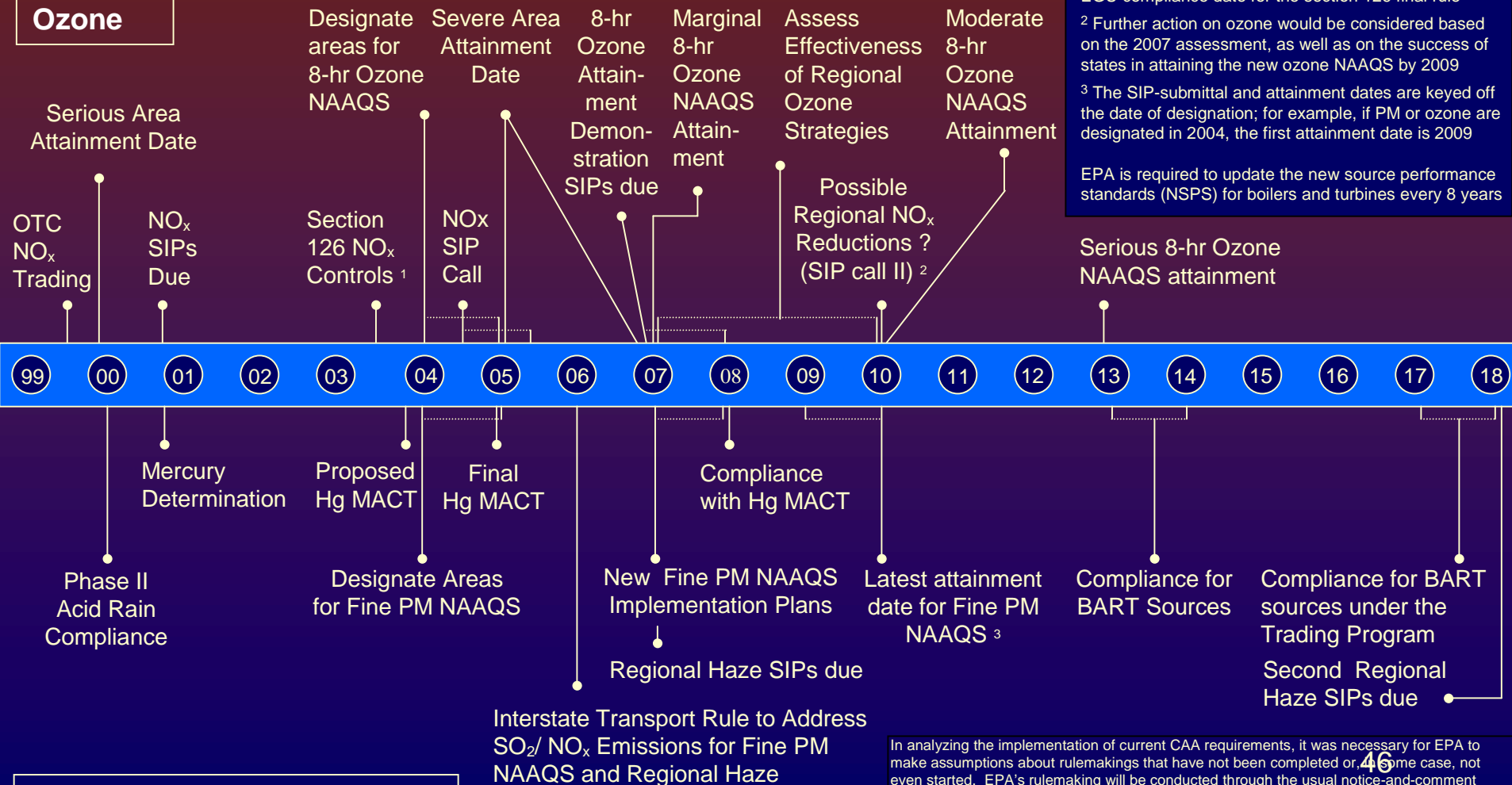
Toward a comprehensive, multi-emissions strategy

- ❖ Some view current regulatory approaches as:
 - ❖ Complex and burdensome
 - ❖ Inadequately protecting human health and the environment
- ❖ Comprehensive approach could:
 - ❖ **Address multiple environmental issues**
 - ❖ Particulate matter, visibility, ozone, acid rain, eutrophication, mercury
 - ❖ **Reduce cost**
 - ❖ By consolidating multiple regulations, offering flexibility, and providing a predictable regulatory outlook

Electric power sector faces numerous CAA regulations

NSR permits for new sources & modifications that increase emissions

Ozone



Note: Dotted lines indicate a range of possible dates.

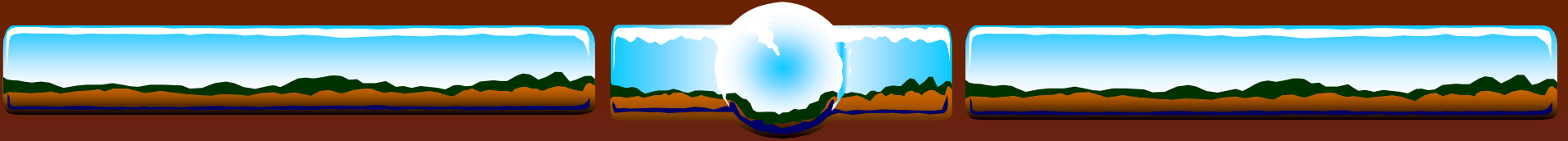
¹ The D.C. Circuit Court has delayed the May 1, 2003 EGU compliance date for the section 126 final rule

² Further action on ozone would be considered based on the 2007 assessment, as well as on the success of states in attaining the new ozone NAAQS by 2009

³ The SIP-submittal and attainment dates are keyed off the date of designation; for example, if PM or ozone are designated in 2004, the first attainment date is 2009

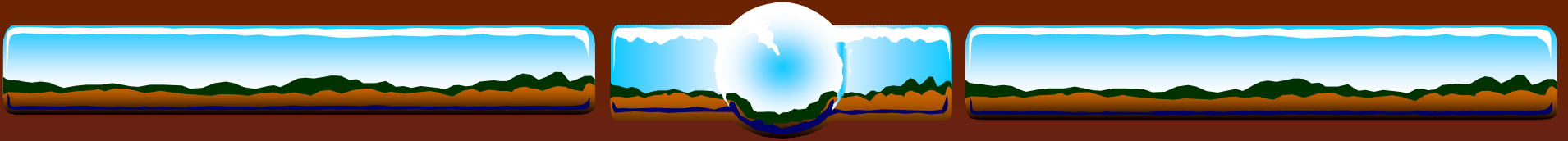
EPA is required to update the new source performance standards (NSPS) for boilers and turbines every 8 years

In analyzing the implementation of current CAA requirements, it was necessary for EPA to make assumptions about rulemakings that have not been completed or, in some cases, not even started. EPA's rulemaking will be conducted through the usual notice-and-comment process, and the conclusions may vary from these assumptions.



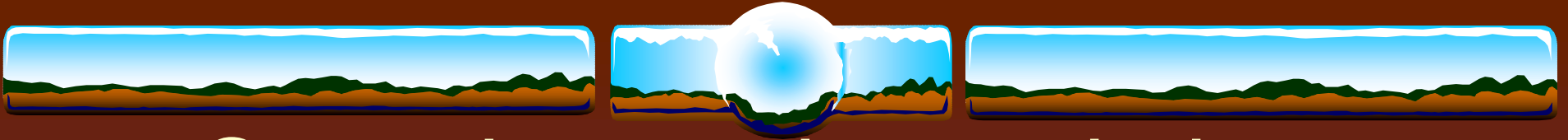
A comprehensive, multi-emissions strategy:

- ❖ Is compatible with electric industry restructuring
- ❖ Provides broad regional reductions, allowing states flexibility to address local issues
- ❖ Can be implemented by EPA and industry
 - ❖ much of infrastructure already in place to monitor and report SO₂, NO_x, and CO₂
 - ❖ trading of SO₂ and NO_x allowances



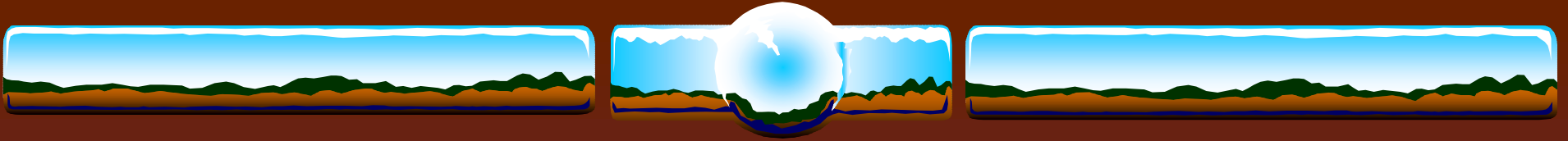
The Clear Skies Initiative

- ❖ The Clear Skies Initiative is, by far, the most aggressive action ever proposed by any President to reduce emissions from power plants.
- ❖ Prior to President Bush's Clear Skies Initiative, this distinction was held by President George H.W. Bush, who proposed legislation to reduce SO₂ emissions from power plants by approximately 50% from 1990 levels. Congress adopted this proposal in 1990.
- ❖ Under the Clear Skies Initiative, power plant emissions of
 - ❖ SO₂ will be reduced by 73% from today's levels,
 - ❖ NO_x will be reduced by 67% from today's levels, and
 - ❖ Mercury will be reduced by 69% from today's levels.



Some interesting variations

- ❖ Stratospheric ozone protection (CFCs)
 - ❖ A phase out leading to a total ban
 - ❖ A marketable permit system for producers
 - ❖ An excise tax to address potential windfall profits
- ❖ Air toxics early reduction program
 - ❖ Hazardous polluters that achieve a early 90% reduction can delay compliance for six years.
 - ❖ Yields a significant net reduction in emissions



Some more interesting variations

❖ Wood stove trading program

- ❖ Before building a new fireplace/wood burning stove, owner must eliminate two existing units.
- ❖ Program exists in Telluride, CO and other nearby communities addressing particulate pollution.

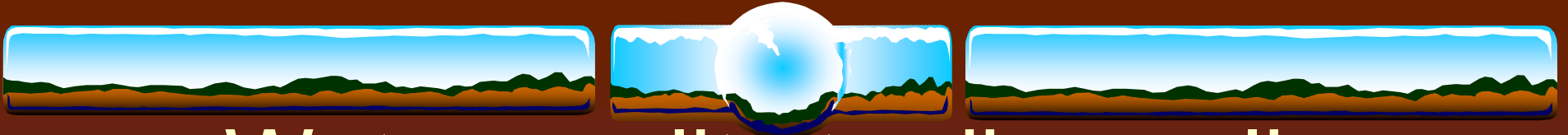
❖ Heavy duty truck emissions averaging

- ❖ Allows manufactures of heavy duty engines to average emissions across production lines.
- ❖ Averaging between companies now also allowed



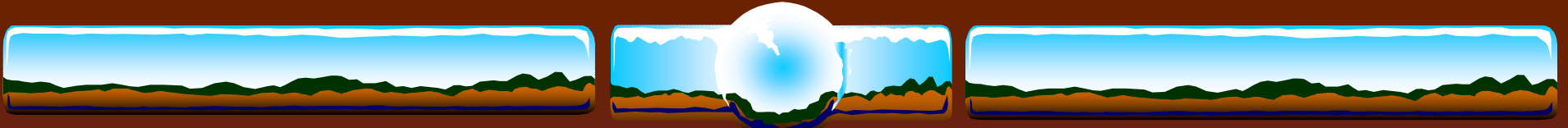
III. Marketable permits in Federal water pollution control

- ❖ Is today about where air was in 1986
 - ❖ When the Emissions Trading Policy Statement codified, offsets, netting, banking and bubbles.
 - ❖ Numerous individual trades and pilots, but no broad acceptance, or applications.
- ❖ Water Office
 - ❖ Proposed a Water Quality Trading Policy on May 15, 2002.
 - ❖ Has pilots ranging from Dillon and Tar Pamlico to the Lower Boise River Effluent Trading Demonstration Project.



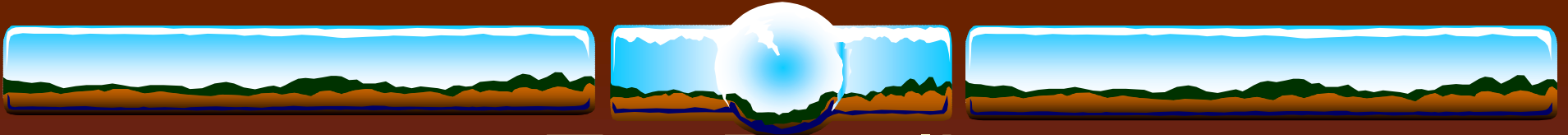
Water quality trading policy

- ❖ Part of a strategy to support development and implementation of market-based approaches.
- ❖ Addresses many of the issues and concerns raised by internal and external stakeholders.
- ❖ Issues similar to those discussed for air with additions and variations due to water's unique characteristics, legislative, & regulatory history.
- ❖ Available as a handout or at:<http://www.epa.gov/owow/watershed/trading/tradingpolicy.html>



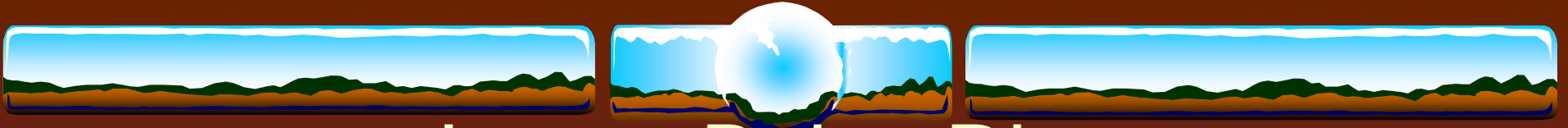
Dillon Reservoir

- ❖ Driven by concerns about economic growth
- ❖ Provides for
 - ❖ Cap on phosphorus loadings
 - ❖ Allocated loadings to 4 POTWs
 - ❖ Framework for phosphorus trades with non-point sources
 - ❖ New point sources 2:1 ratio with existing non-point or point sources
 - ❖ New non-point sources 1:1 ratio with existing non-point
- ❖ Trading slow because growth has been slower than expected



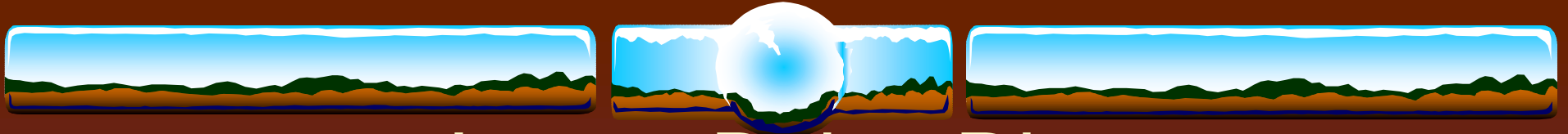
Tar Pamlico

- ❖ Allows 12 POTWs to offset excess discharges
- ❖ Can trade with feedlot operators on 2:1 basis
- ❖ Can trade with cropland managers using 3:1
- ❖ To date point sources have found new ways to meet stricter discharge limits without trading
- ❖ A success as it has stimulated new technology
- ❖ Yet, non-point sources are disappointed as POTWs have not paid for NPS reductions



Lower Boise River Effluent Trading Demonstration Project

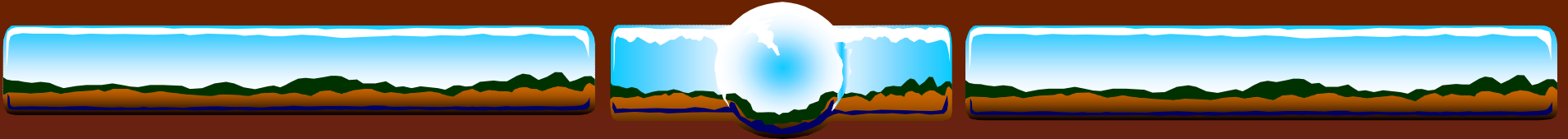
- ❖ Dynamic, market-based trading
 - ❖ Broad authorization to trade subject to trading 'rules'
 - ❖ TMDL authorizes trading with out being reopened
- ❖ Liability remains with permit holder
 - ❖ PS, NPS sign private trade contract
 - ❖ Variable permit limits within NPDES permit
 - ❖ DMR reporting modified to reflect trading program
 - ❖ Trades tracked to help enforcement
- ❖ Robust Participation by all stakeholders



Lower Boise River Effluent Trading Demonstration Project

Environment Protected

- ❖ Location based trading ratios applied
- ❖ Limits on trading to prevent local impacts
- ❖ Water quality contribution required for each trade
- ❖ NPS trades limited to practices on BMP list
- ❖ Baseline carefully defined
- ❖ NPS credits: monitored, design/construction/O&M requirements, uncertainty discount if can not measure



IV. Observations and conclusions

Marketable permits seem to be accepted when:

- ❖ Other drivers than just good policy and cost savings exist.
- ❖ Political, economic development, cost & technology
- ❖ Barriers to environmental goals have served as drivers.
- ❖ Success of the Acid Rain and lead phase-down program was critical to acceptance in air.
- ❖ Incentives are easier to integrate into new programs than to graft onto existing programs.
- ❖ Challenges still remain with respect to the application of marketable permits in the water arena



URLs

- ❖ Directory of Air Quality Incentive Programs
(<http://yosemite.epa.gov/aa/programs.nsf>)
- ❖ Water Trading Website
(<http://www.epa.gov/owow/watershed/trading.htm>)
- ❖ NCEE Website
(<http://www.epa.gov/economics>)
- ❖ Report on Savings from using Economic Incentives
(<http://yosemite.epa.gov/ee/epa/incsave.nsf>)